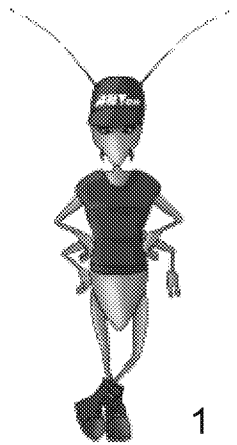
MIREMAR Conference

New Methods for the Safe Disposal of Unexploded Ordnances

in the North- and Baltic Sea

Neumünster, 18. November 2010

Franz Eder, CEO
ANT Applied New Technologies AG



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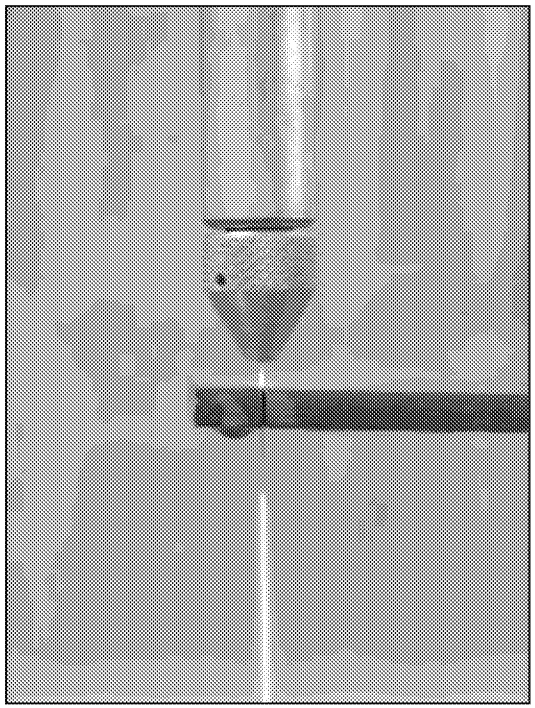

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The Global Market Leader

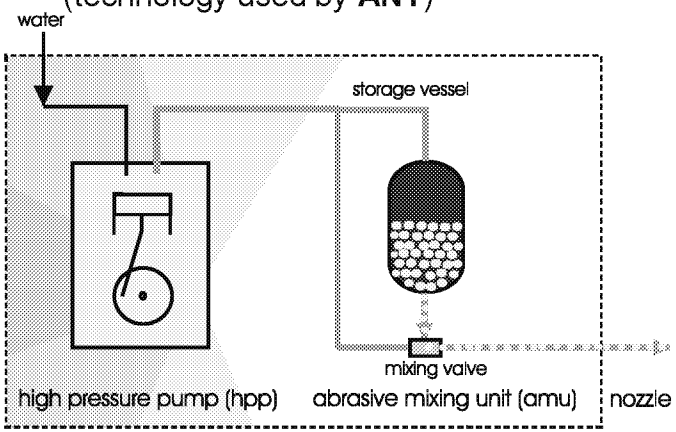
for

Mobile Abrasive Cutting Equipment

(WASS)

Water Abrasive Suspension System (WASS)

(technology used by **ANT**)



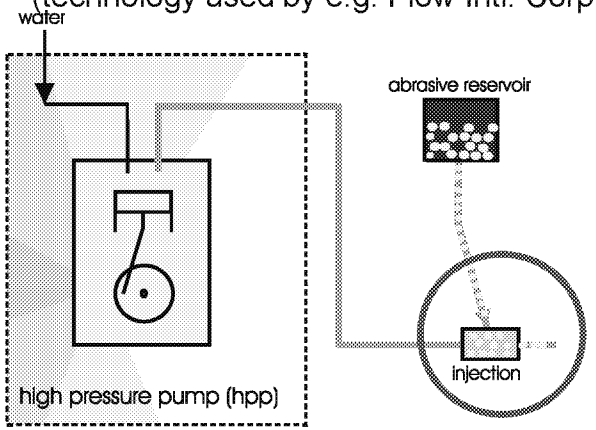
2-phase-system

- water 90 %
- abrasive 10 %

„dirty water“

Water Abrasive Injection System (WAIS)

(technology used by e.g. Flow Intl. Corp.)



3-phase-system

- air 90 %
- water 6 %
- abrasive 4 %

„dirty air“

Water Abrasive Suspension System (WASS)

(technology used by **ANT**)

+ no air in the jet
  (safe for explosives!)
+ works under rainy conditions
+ cutting under water
+ Abrasive mixing unit is off site
  (up to 1.000m and more)
+ easy manipulation
  (less strength, 1 hose!)

EOD system

Water Abrasive Injection System (WAIS)

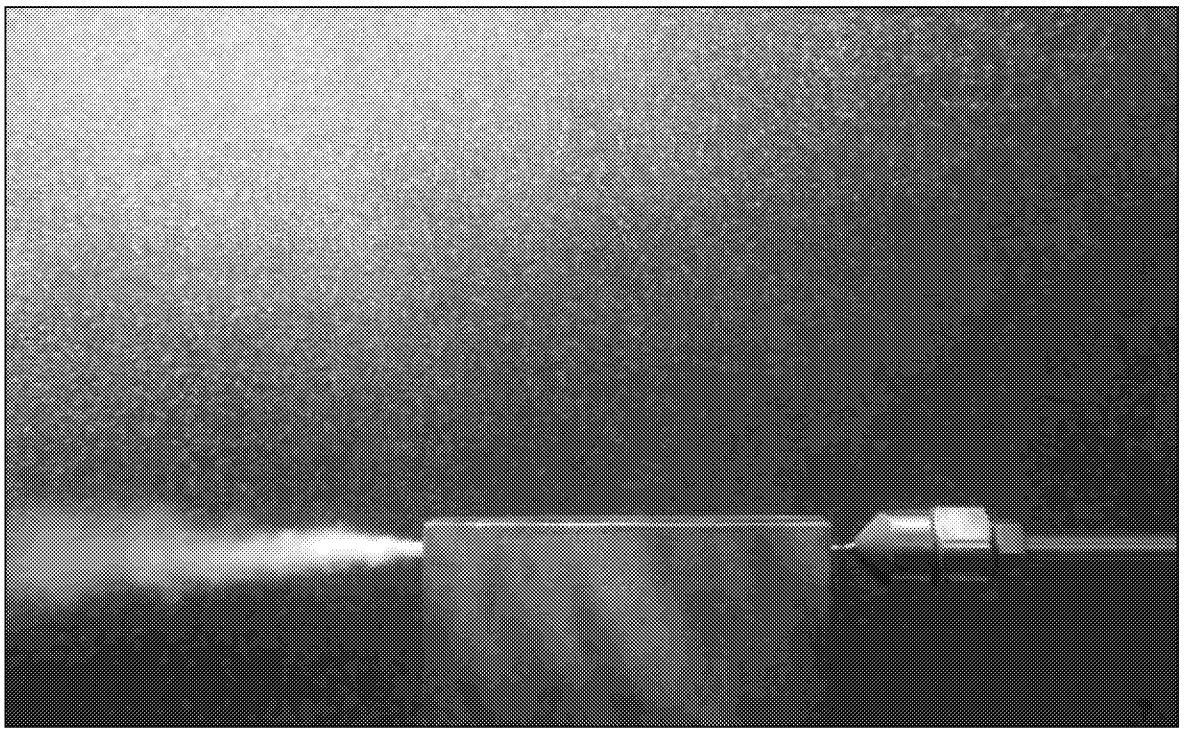
(technology used by e.g. Flow Intl. Corp.)

- Air in the jet
  (not safe for explosives)
- Not reliable under rainy conditions
- No cutting under water
- Abrasive hopper unit is close to UXO (max. 20m)
- extensive manipulation
  (3 times heavier, 2 hoses!)

Water Abrasive Suspension (WAS)

Cutting Equipment

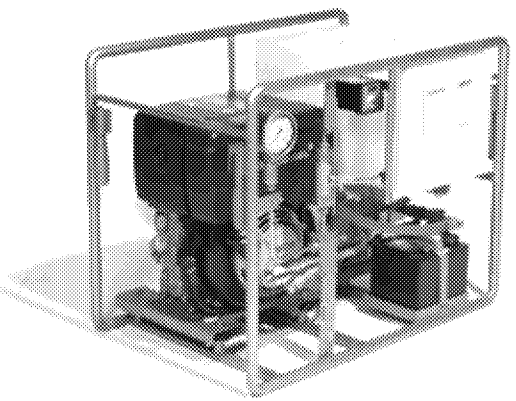
Cutting under water up to 600 m depth



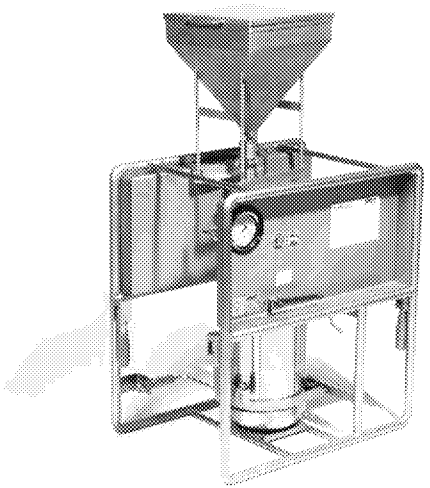
EOD / IEDD Products

ANT-Products for a remote render safe process

EOD: MACE

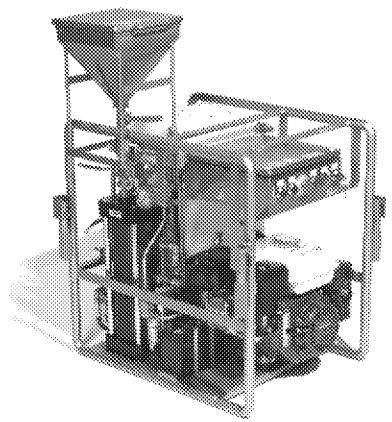


High Pressure Pump



Abrasiv Mixing Unit

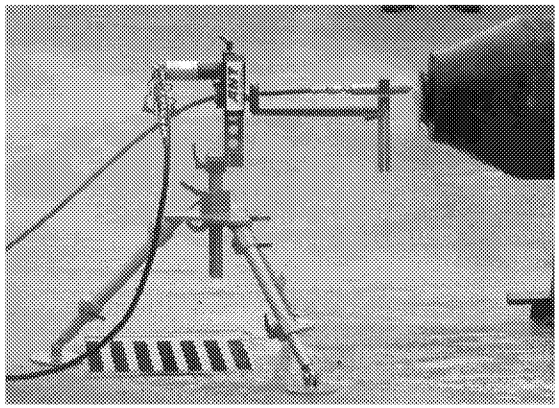
IEDD: mini MACE



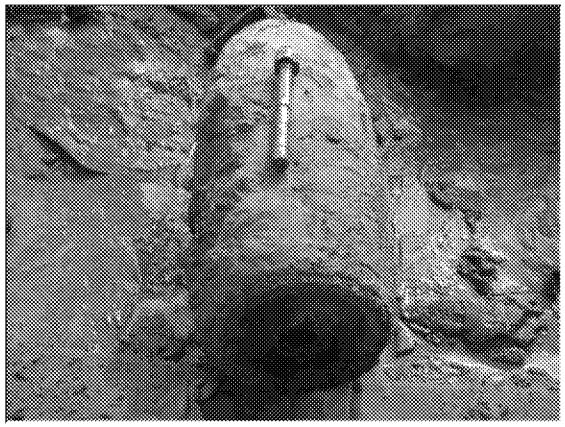
Complete system

Safety through remote operations
(up to 1000 m distance)

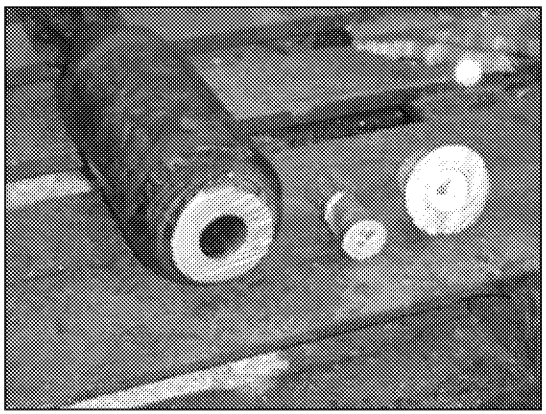
MACE Applications



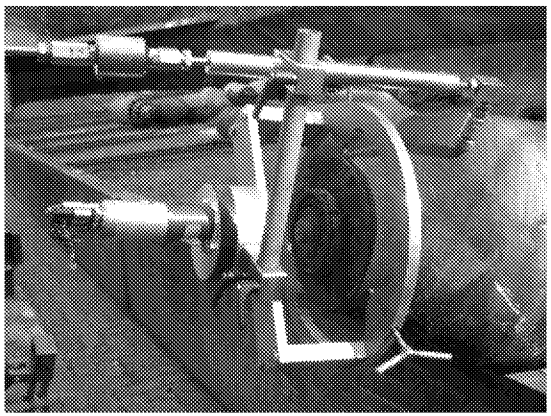
cutting out the fuse



A cut out long delay fuse
(on a Brit. GP 500)



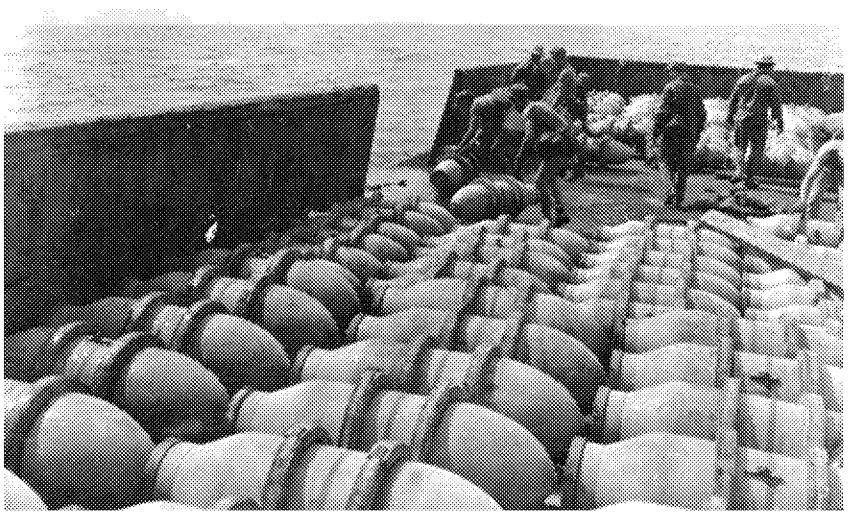
Cut through the fuse of a
phosphor bomb



cut of a tail end (with fuse)

2. Problem of dumped ammunition

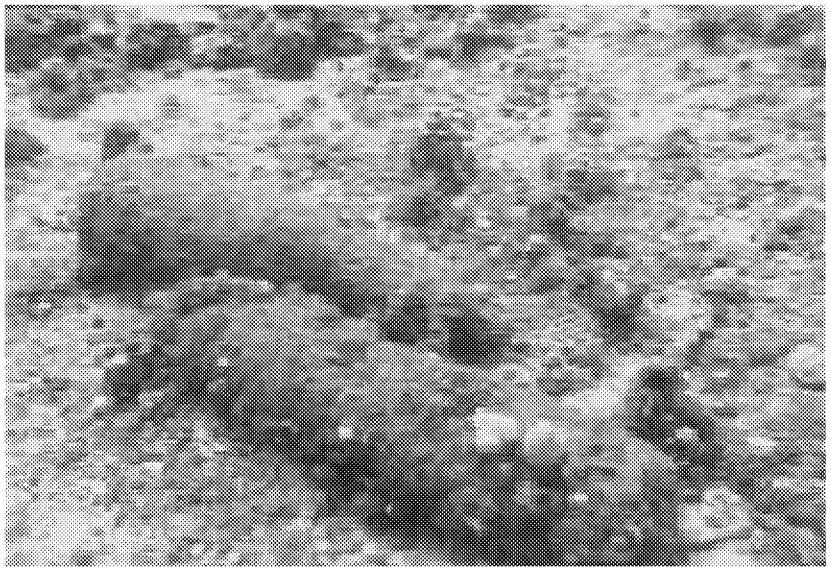
Far more than 100 dumpsites of unexploded munitions in Europe



Lethal risk for workers in the fishing industry !

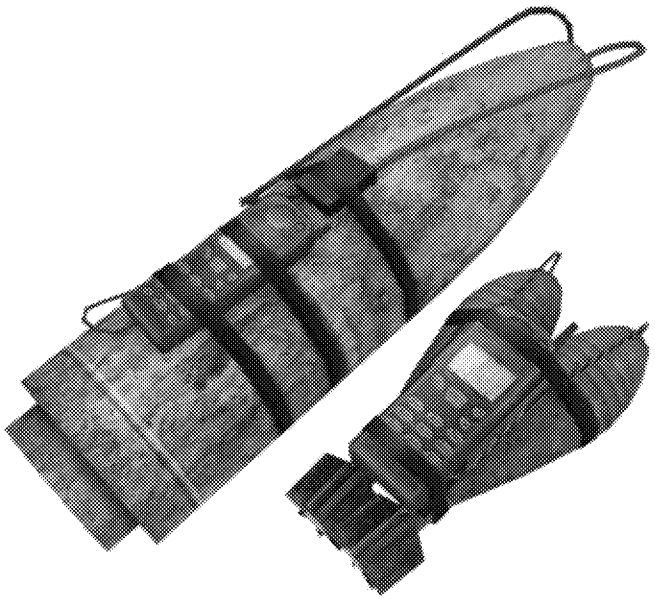
e.g. Three Dutch fisherman killed in April 2005 by II WW bomb

Growing threat for sea life and our environment !



corrosion will continue,
leakage of toxic agents will increase

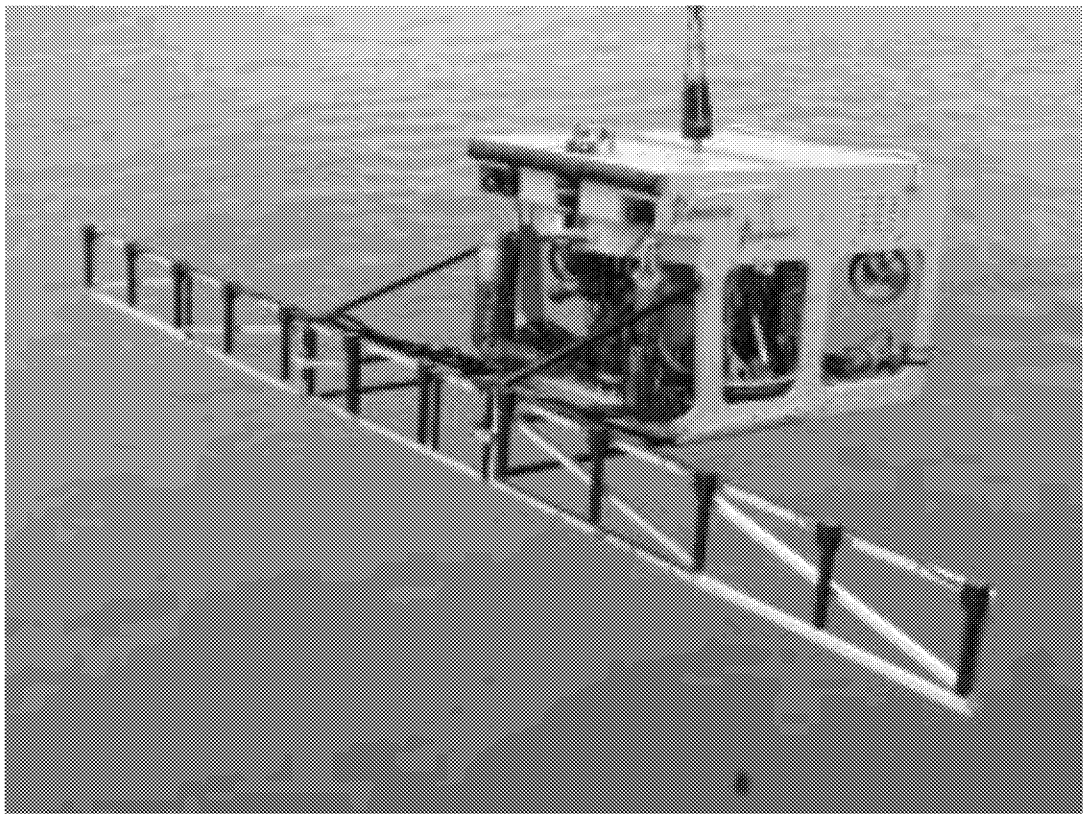
Potential use
by terrorists and extremists !



Easy access because of the
low water depth (0-30 m) of a lot of dump sites

3. Search and survey of munitions

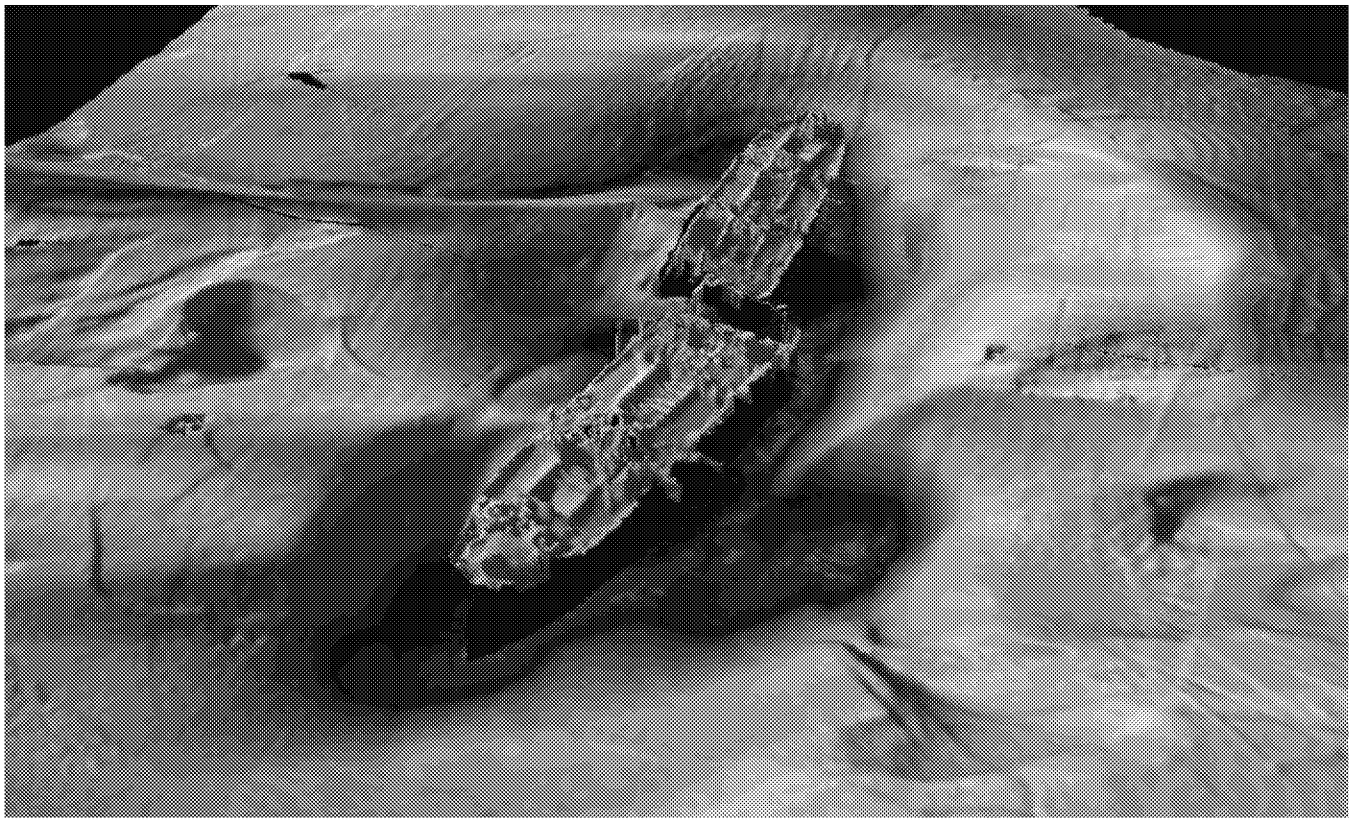
Survey of unexploded munitions with ROV's



e.g. Comanche ROV from Marin Mätteknik AB, Sveden

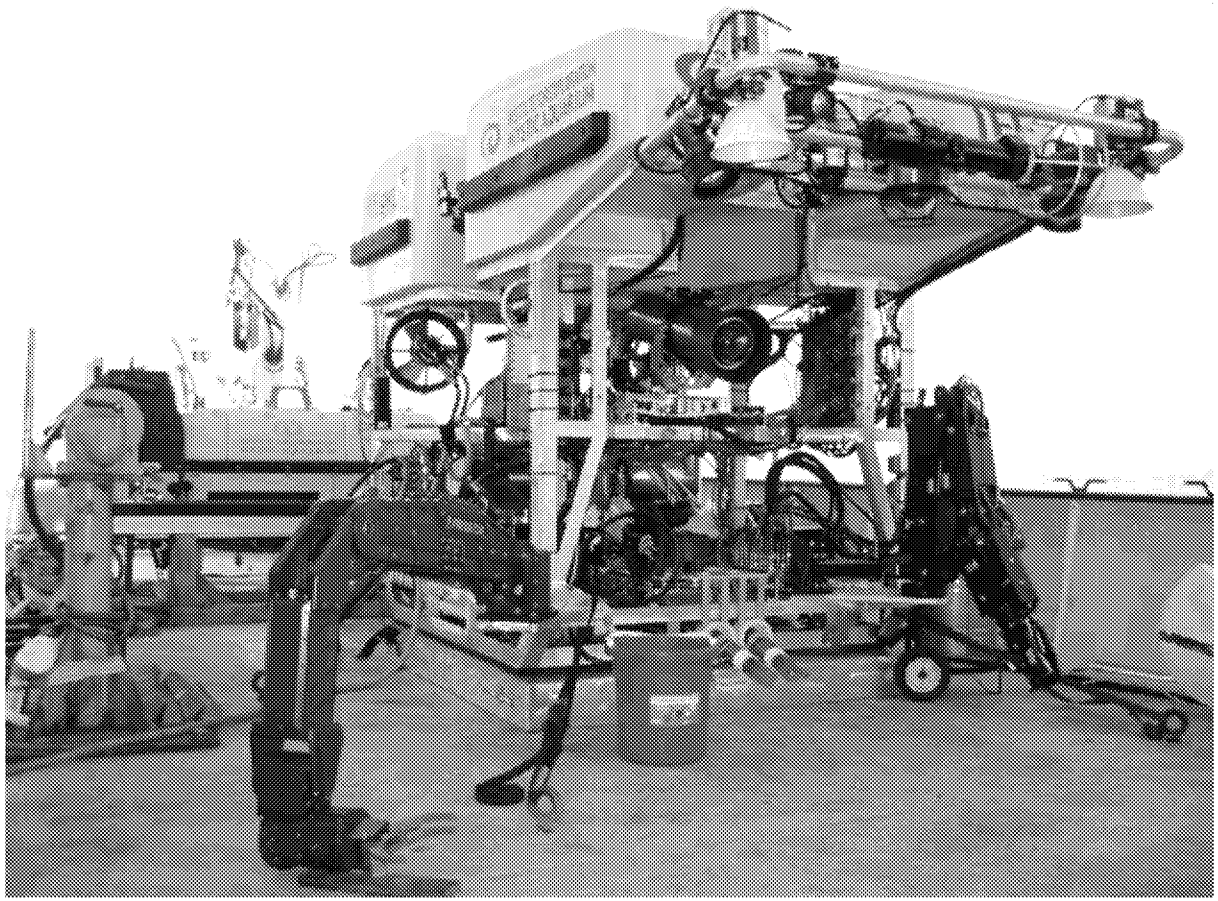
(so far over 2500 km for the North Stream Pipeline Project !)

Using a combination of various sensoric and acoustic systems



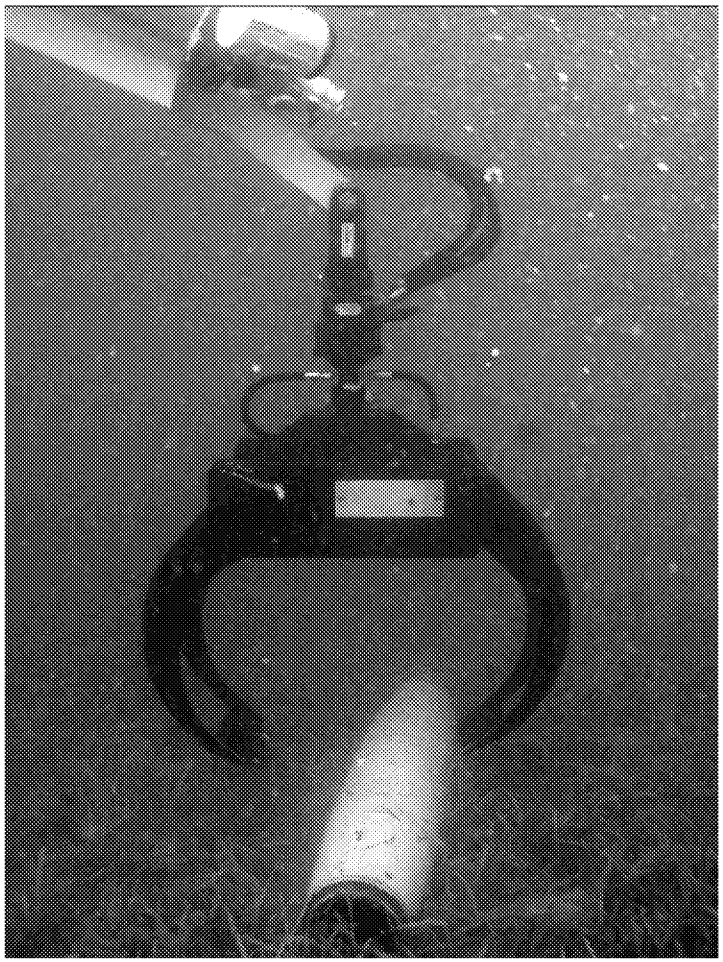
4. Separation and Salvage

Separation and salvage of light munitions with ROV‘s



Using ROV‘s from offshore service companies

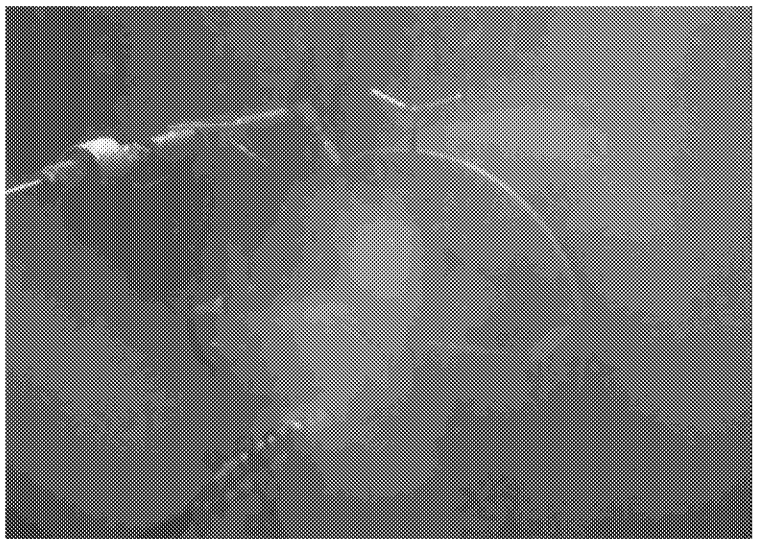
Separation and Salvage of heavy munitions off the sea floor

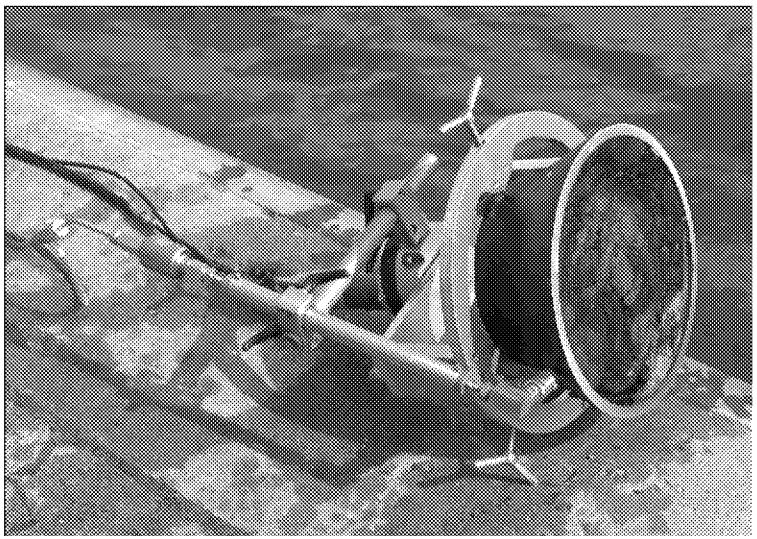


e.g. with robotics from Underwater Ordinance Recovery Inc.

5. Defusing the bombs

Defusing the bombs under water with MACE





e.g. cutting off the rear section with the fuse
(Brit. GP 1000 lbs bomb)

Defusing the bombs on a barge with MACE

e.g. cutting out a fuse at the screw thread

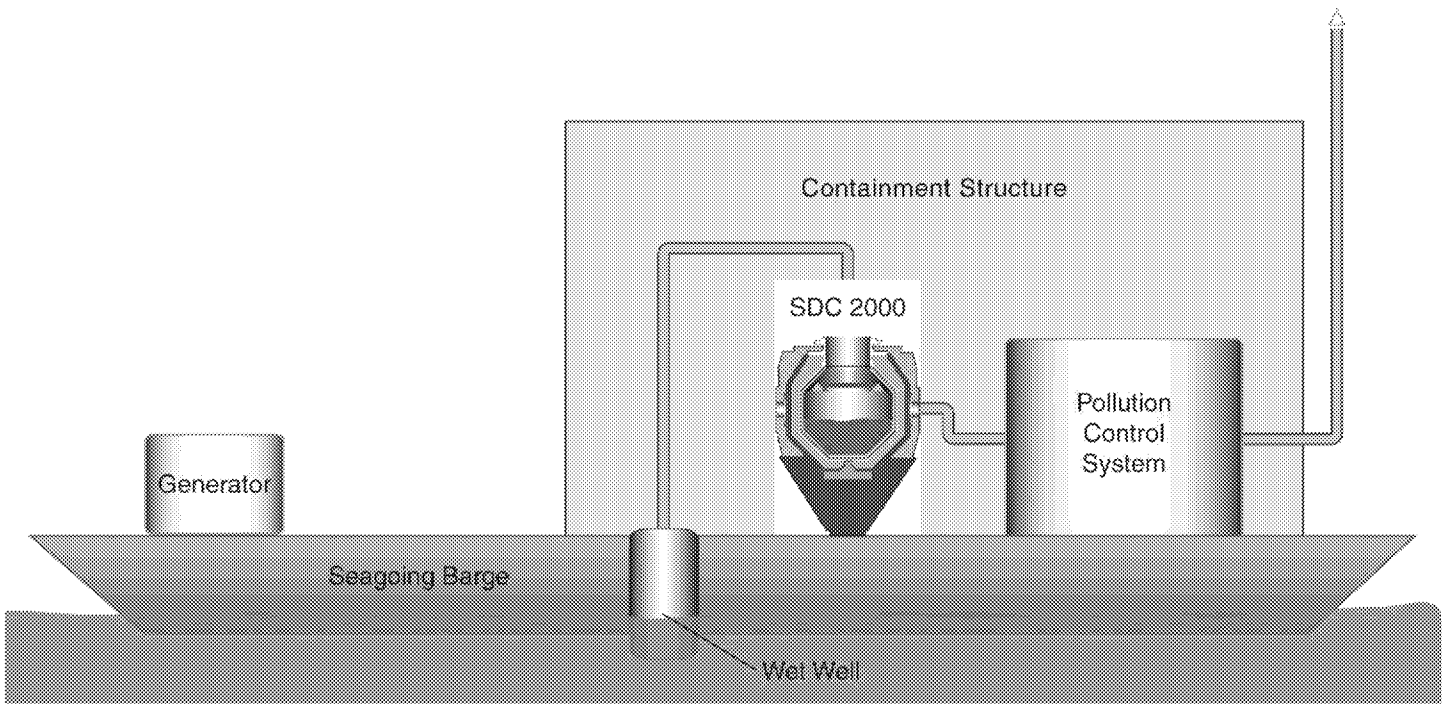
(US GP 500 bomb)

6. Transport and Destruction

Offshore on special built barges

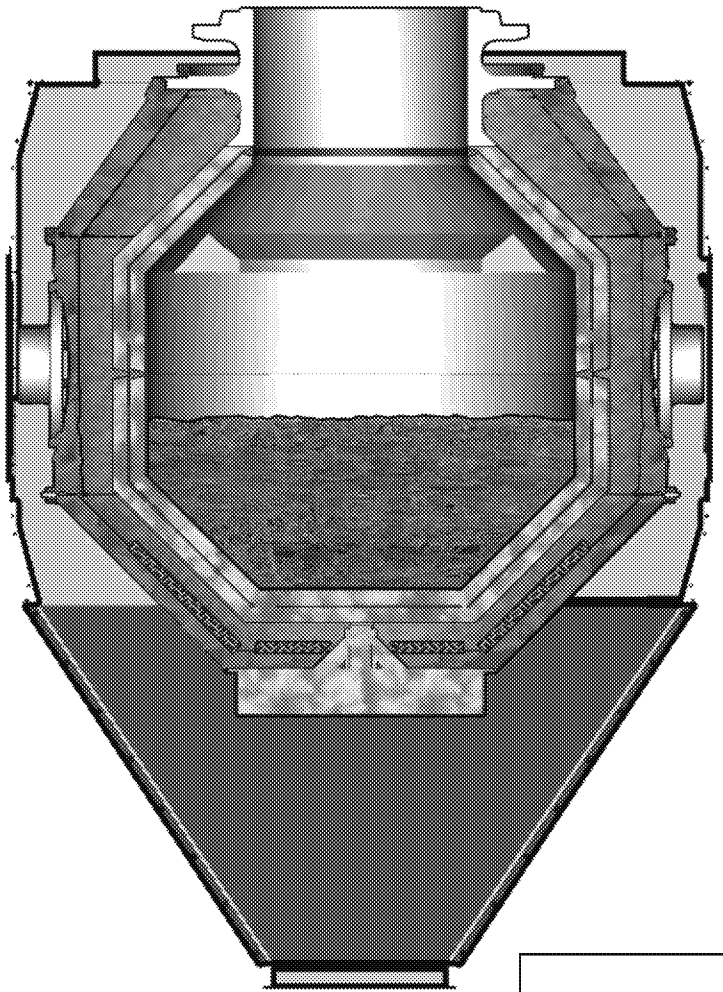
(Dynasafe Concept)

- Based on adaptation of proven technologies
- Zero handling of munitions after recovery



Using Dynasafe SDC

(Static Detonation Chamber)



Outer chamber with heat insulation

Air

Inner chamber

Electrical heating elements

Scrap bed

www.dynasafe.com

Using existing onshore facilities

e.g. Geka mbH, Munster

transport, storage, demilitarisation and destruction

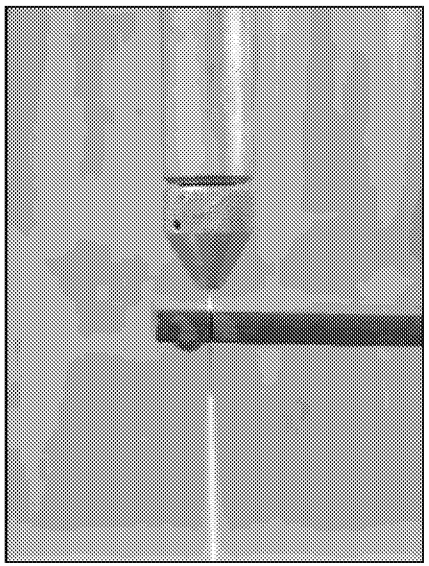
www.geka-munster.de

7. Resumé – Recovery (avoiding Detonations!)

- **Proven technologies are available for recovery**
- **Companies are ready to start**

- **Political will is required to fund a reference project**
- **At least to clean up the hot spots in shallow waters**

Thank you for your attention !



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